

WHAT IS CLAIMED IS:

1 1. A remotely controlled animal training device, comprising:

2 (a) receiving circuitry for receiving control information signals including
3 address information and function information from a remote transmitter;

4 (b) a microcontroller coupled to receive demodulated address codes and
5 function codes from the receiving circuitry;

6 (c) a set switch for setting the remotely controlled animal training device to
7 recognize only an address code received from a particular remote transmitter;

8 (d) a first stored routine executed by the microcontroller for storing the
9 address code received from the remote transmitter in response to actuation of the set switch;

10 (e) a second stored routine executed by the microcontroller for operating on
11 an address code contained in control information signals received by the remotely controlled
12 animal training device and comparing the address code to the stored address code to determine if
13 the remotely controlled animal training device is being addressed by the particular remote
14 transmitter, the microcontroller then operating on a function code contained in control
15 information signals received by the remotely controlled animal training device if the address code

16 matches the stored address code.

1 2. The remotely controlled animal training device of claim 1 wherein the address
2 code includes a sufficient number of bits to essentially eliminate the possibility of accidental
3 actuation of any of a first predetermined number of remotely controlled animal training devices
4 in a training area by any of a second predetermined number of remote transmitters in the training
5 area.

1 3. The remotely controlled animal training device of claim 1 wherein the first stored
2 routine executed by the microcontroller also stores the function code received from the particular
3 remote transmitter in response to the actuation of the set switch.

1 4. A remotely controlled animal training device, comprising:

2 (a) receiving circuitry for receiving signals from a remote transmitter
3 including function information correlating various settings of a sound selection switch with

4 various sound algorithms;

5 (b) a microcontroller storing the various sound algorithms and coupled to
6 receive demodulated function codes representing the function information from the receiving
7 circuitry;

8 (c) a set switch and a first stored routine executed by the microcontroller for
9 storing the function codes in order to configure settings of the sound selection switch to
10 correspond to predetermined sound algorithms, respectively;

11 (d) a second stored routine executed by the microcontroller for executing a
12 sound algorithm corresponding to a present setting of the selection switch in response to a sound
13 command from the remote transmitter to produce audio signals determined by the sound
14 algorithm; and

15 (e) an acoustic transducer coupled to receive the audio signals and produce
16 sounds in response to the audio signals.

1 5. A remotely controlled device for controlling a remotely controlled animal training
2 device, comprising:

3 (a) receiving circuitry for receiving control information signals from a remote
4 transmitter;

5 (b) a controller coupled to receive demodulated information from the
6 receiving circuitry and adapted to generate a control signal in response to the demodulated
7 information;

8 (c) a coupling device for coupling the control signal to a control input of the
9 animal training device; and

10 (d) a test circuit responsive to a test switch for testing continuity of the
11 coupling by the coupling device.

1 6. A remotely controlled device for controlling a remotely controlled animal training
2 device, comprising:

3 (a) receiving circuitry for receiving control information signals from a remote
4 transmitter;

5 (b) a controller coupled to receive demodulated information from the

6 receiving circuitry and adapted to generate audio signals and a control signal in response to the
7 demodulated information;

8 (c) a coupling device for coupling the control signal to a control input of the
9 animal training device;

10 (d) an acoustic transducer coupled to receive the audio signals and produce
11 predetermined sounds in response to the audio signals; and

12 (e) a test circuit responsive to a test switch for testing continuity of the
13 coupling by the coupling device.

1 7. A remotely controlled animal training device for controlling a launching device,
2 comprising:

3 (a) receiving circuitry for receiving control information signals from a remote
4 transmitter;

5 (b) a controller coupled to receive demodulated information from the
6 receiving circuitry and adapted to generate audio signals and a launch signal in response to the

7 demodulated information;

8 (c) a coupling device for coupling the launch signal to control an input of a
9 launching device;

10 (d) an acoustic transducer coupled to receive the audio signals and produce
11 predetermined sounds in response to the audio signals; and

12 (e) a test circuit responsive to a test switch for testing continuity of the
13 coupling by the coupling device.

1 8. The remotely controlled animal training device of claim 7 wherein the test switch
2 is included in the remotely controlled animal training device.

1 9. A remotely controlled animal training device for controlling a launching device,
2 comprising:

3 (a) receiving circuitry for receiving control information signals from a remote

4 transmitter;

5 (b) a microcontroller coupled to receive demodulated information from the
6 receiving circuitry and adapted to generate audio signals and first and second launch signals in
7 response to the demodulated information;

8 (c) first and second coupling devices for coupling the first and second launch
9 signals to control inputs of first and second launching devices, respectively;

10 (d) an acoustic transducer coupled to receive the audio signals and produce
11 predetermined sounds in response to the audio signals; and

12 (e) first and second test circuits coupled to a test switch for testing continuity
13 of the coupling by the first and second coupling devices.

1 10. The remotely controlled animal training device of claim 9 wherein the receiving
2 circuitry includes an intermediate frequency (IF) circuit and a data slicer circuit, wherein the IF
3 circuit demodulates the control information signals to produce demodulated control information
4 signals, and wherein the data slicer circuit slices the demodulated control information signals to
5 produce the demodulated information in the form of demodulated sliced control information

6 signals.

1 11. The remotely controlled animal training device of claim 10 wherein the
2 microcontroller operates to generate a predetermined reference voltage and apply it to a reference
3 input of the data slicer circuit wherein the sliced demodulated control information signals swing
4 about a voltage level based on the predetermined reference voltage.

1 12. The remotely controlled animal training device of claim 11 including a coupling
2 capacitor coupling the demodulated and sliced control information signals to an input of the data
3 slicer circuit.

1 13. The remotely controlled animal training device of claim 9 including means for
2 attaching the remotely controlled animal training device to one of the first and second launching
3 devices.

1 14. The remotely controlled animal training device of claim 9 wherein the acoustic
2 transducer includes a piezoelectric (PZT)-device.

1 15. The remotely controlled animal training device of claim 9 including a set switch
2 for performing the function of setting address recognition circuitry in the remotely controlled
3 animal training device to recognize an address code transmitted by a particular remote
4 transmitter.

1 16. The remotely controlled animal training device of claim 9 wherein the first test
2 circuit includes a first transistor having a control terminal coupled to the first output of the
3 microcontroller, a first terminal coupled to a reference conductor, and a second terminal coupled
4 to the first coupling device and also coupled by a high resistance to a control terminal of a second
5 transistor having a first terminal coupled to the reference conductor and a second conductor
6 coupled through a first light emitting diode to a test signal produced in response to actuation of
7 the test switch, wherein turning the first transistor off with the first coupling device connected to
8 the control input of the first launching device causes the second transistor to conduct current
9 through the first light emitting diode to indicate continuity of the coupling between the first
10 coupling device and the control input of the first launching device the test switch is actuated

11 without actuating the first launching device.

1 17. The remotely controlled animal training device of claim 9 wherein the control
2 information includes address information and function information.

1 18. The remotely controlled animal training device of claim 16 wherein the
2 microcontroller includes a stored program executed by the microcontroller to produce address
3 code information recognized by the remotely controlled animal training device and function
4 information for operating the remotely controlled animal training device.

1 19. The remotely controlled animal training device of claim 17 wherein the address
2 code includes a sufficient number of bits to essentially eliminate the possibility of accidental
3 actuation of any of a first predetermined number of remotely controlled animal training devices
4 in the training area by any of a second predetermined number of remote transmitters in the
5 training area.

1 20. A method of remotely controlling a launching device for animal training purposes,
2 comprising:

3 (a) transmitting control information signals by means of a remote transmitter;

4 (b) receiving and demodulating the transmitted control information signals by
5 means of receiving circuitry in a launch controller;

6 (c) operating on demodulated signals produced by the receiving circuitry by
7 means of a controller to generate audio signals and first and second launch signals ;

8 (d) coupling the first and second launch signals to control inputs of first and
9 second launching devices, respectively;

10 (e) producing predetermined sounds in response to the audio signals by means
11 of an acoustic transducer; and

12 (f) testing continuity of the coupling of the first and second launch signals to
13 control inputs of first and second launching devices, respectively, by actuating a test switch the
14 coupled to first and second test circuits.

1 21. The method of claim 20 including demodulating the control information signals to
2 produce demodulated control information signals, and slicing the demodulated control
3 information signals to produce the demodulated information in the form of demodulated and
4 sliced control information signals.

1 22. The method of claim 21 including operating the microcontroller to generate a
2 predetermined reference voltage and applying the predetermined reference voltage to a reference
3 input of a data slicer circuit wherein the demodulated and sliced control information signals
4 swing about a voltage level based on the predetermined reference voltage.

1 23. The method of claim 21 including coupling the demodulated control information
2 signals to an input of the data slicer circuit by means of a coupling capacitor .

1 24. The remotely controlled animal training device of claim 20 including producing
2 the predetermined sounds by means of a piezoelectric (PZT) device.

1 25. The method of claim 20 wherein the first test circuit includes a first transistor
2 having a control terminal coupled to the first output of the microcontroller, a first terminal
3 coupled to a reference conductor, and a second terminal coupled to the first coupling device and
4 also coupled by a high resistance to a control terminal of a second transistor having a first
5 terminal coupled to the reference conductor and a second conductor coupled through a first light
6 emitting diode to a test signal produced in response to actuation of the test switch,

7 the method including indicating continuity of the coupling between the controller and the
8 first launching device when the test switch is actuated without actuating the first launching
9 device by turning the first transistor off and causing the second transistor to conduct current
10 through the first light emitting diode in response to the coupling.

1 26. The method of claim 21 executing a stored program in the controller to operate on
2 address code information included in the demodulated and sliced signals and comparing them
3 with a stored predetermined address code to determine if the launch controller is being addressed,
4 and to operate on function information included in the demodulated and sliced signals for
5 operating the remotely controlled animal training device, wherein the address code includes a
6 sufficient number of bits to essentially eliminate the possibility of accidental actuation of any of a
7 first predetermined number of remotely controlled animal training devices in the training area by
8 any of a second predetermined number of remote transmitters in the training area.